

AFTERWORD

Eight memory researchers investigating their own autobiographical memory

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Abstract

The present article provides a descriptive review of the studies conducted by eight memory researchers who empirically investigated their own autobiographical memory. They are Francis Galton, Madorah Smith, Marigold Linton, Willem Wagenaar, Steen Larsen, Dorthe Berntsen, Alan Baddeley and Richard White. These authors assessed their ability to remember their personal past by means of a range of experimental procedures and materials including personal diaries, letters, cued and free recall tasks. The methods implemented so far allowed memory researchers to obtain relevant findings on a number of issues which are at the heart of the contemporary autobiographical memory debate, that is, forgetting, memory accuracy, phenomenology, memory content and memory organisation. The findings of the individual studies are compared and contrasted with those of conventional autobiographical memory functioning. It is argued that the strengths of the memory researchers' self-studies of autobiographical memory outweigh their weaknesses.

KEYWORDS

autobiographical memory, memory researchers, personal events, self-study

1 | INTRODUCTION

Starting from the second half of nineteenth century, a number of distinguished psychologists from various fields undertook personal observations and systematic studies aimed at investigating their own mental processes and behaviours. The German experimental psychologist Hermann Ebbinghaus (1885/1913) tested his learning and memory of nonsense syllables, thereby discovering the well-known J shaped curve of forgetting. Sigmund Freud (1900/1953), the father of Psychoanalysis, carefully interpreted his dreams and neurotic episodes. On the other hand, Burrhus Skinner (1983), one of the most representatives of Behaviourism, examined his personal strategies to cope with intellectual decline in the old age. Moving to the present day, the American psychologist and neuroscientist Russell Poldrack (Poldrack, 2021; Poldrack et al., 2015) carried out the MyConnectome project: he was scanned using magnetic resonance imaging more than 100 times over the course of 18 months and during the same period he completed daily questionnaires about his mental health, sleep quality and diet.

The present article provides a description of the empirical studies conducted by eight memory researchers who investigated their own autobiographical memory. These researchers are Francis Galton (1822–1911), Madorah Smith (1887–1965), Marigold Linton (1936–),

Willem Wagenaar (1941–2011), Steen Larsen (1944–1999), Dorthe Berntsen (1962–), Alan Baddeley (1934–) and Richard White (1935–). Importantly, with the exception of Galton and Smith, all these researchers undertook their studies over the last 50 years as the field of psychology of autobiographical memory systematically developed over the same period (Sotgiu, 2021).

A reader of the current article might argue that the list of above-mentioned memory researchers is incomplete as it does not include Freud, who also enquired into his personal past. The reasons why the father of Psychoanalysis was excluded are two. First, Freud did not examine his autobiographical memory in a systematic fashion. Second, he did not explicitly reveal that he was undertaking such self-enquiry. Indeed, in one of his most influential contributions on the autobiographical memory topic—entitled *Screen Memories* (Freud, 1899/1962)—he stated that he was investigating the personal memories of one of his patients:

The subject of this observation is a man of university education, aged thirty-eight. Though his own profession lies in a very different field, he has taken an interest in psychological questions ever since I was able to relieve him of a slight phobia by means of psychoanalysis. (p. 309)¹

To the best of my knowledge, no review has yet drawn together self-studies of autobiographical memory conducted by memory researchers. Accordingly, the current work pursues three objectives. First, I intend to present and discuss the main findings from each of the selected self-studies under review. Some of these studies (Galton, 1879b; Wagenaar, 1986) are widely cited, but others (e.g., Baddeley, 2012; Berntsen, 1999; Smith, 1952) have received much less attention. A second objective is to provide an overall picture of the current state of art. With this regard, I will first discuss the methodological similarities and differences between the reviewed studies; then, based on the findings of the latter, I draw some tentative conclusions regarding the autobiographical memory functioning

of these researchers. Third, I will assess the strengths and the weaknesses of the studies under review.

In order to find empirical self-studies of autobiographical memory, I surveyed the reference literature on autobiographical memory: from 1879, when the first empirical contribution on this topic was published (Galton, 1879a, 1879b), to the present day. Results of this search led me to identify the empirical studies targeted by the present article. To verify that all the relevant and pertinent material had been identified, I then conducted an additional bibliographic search on the PsycINFO database using as keywords those concepts employed by the authors of the studies which were found during the first stage of my bibliographic search.² Remarkably, no supplementary self-studies of

TABLE 1 Overview of studies by memory researchers investigating their own autobiographical memory

Researcher's self-study	Material and design	Recording time and total number of records	Retention intervals	Main measures of autobiographical memory
Galton (1879a, 1879b)	Self-administration of 75 cue words over four separate trials	300 trials over 3 months; 505 records	Not applicable	Memory content; age of memory; time spent to access memory
Smith (1952)	Personal diaries kept by the author and her mother, and memory tests at a later time	49 years; data not available	From 1 to 60 years	Forgetting; clarity; novelty; memory for houses and persons; emotional intensity
Linton (1975, 1978, 1982)	Daily recording of two or more personal events and memory tests at a later time	6 years; 5500 records	From 1 month to 6 years	Forgetting; date of event occurrence; memory-search strategies
Linton (1986)	Free recall of personal events	Not applicable	From 1 to 12 years	Memory-search strategies
Wagenaar (1986)	Daily recording of one personal event and memory tests at a later time	6 years; 2402 records	From 2 months to 4 years	Forgetting; recall of event elements (what the event was, who was involved, when and where the event happened); recall of details
Larsen (1992)	Daily recording of one public news event and one personal event, and memory tests at a later time	6 months; 320 records	From 1 to 11 months	Recall of event elements (what the event was, who was involved, when and where the event happened, news source, reception context); recall of details; confidence; recognition of details; rehearsal
Berntsen (1999, Study 1)	Daily recording of involuntary autobiographical memories and online assessment of their properties	7 weeks; 100 records	Not applicable	Frequency of memories; nature of recalled events (specific vs. summarised); age of memory; emotional content; vividness; retrieval context cues; prior rehearsal
Baddeley (2012)	Personal letters sent by the author to his mother and memory tests at a later time	About 1 year; data not available	About 45 years	Forgetting; knowing experience; vividness; social sharing; event triviality; event specificity
White (1982, 1989, 2002, 2020)	Daily recording of one personal event and memory tests at a later time	1 year; 354 records	1, 2, 6, 20, 40 years	Quality of recall; date and time of event occurrence
White (2020)	Unstructured daily personal diary and memory tests at a later time	3 years; data not available	40 years	Ability to recall images for specific episodes

Note: Given the nature of the methods employed in their studies, both Galton (1879a, 1879b) and Berntsen (1999) did not define specific retention intervals; however, both researchers estimated the age of their memories. As concerns Linton's (1986) study, no recording procedure was used.

autobiographical memory conducted by memory researchers were identified in this electronic search.

Table 1 summarises the main characteristics of the studies which were judged to be relevant for the current review, including author and year of publication; material and design; some key information about the experimental procedure; and main measures of autobiographical memory. Some authors (i.e., Galton, Linton and White) reported and discussed their findings in multiple papers, with Linton and White conducting several independent studies of their own memory.

The data considered for the present review come from 15 papers: 8 journal articles, 6 book chapters and 1 doctoral dissertation.

2 | SUMMARY OF FINDINGS FROM THE STUDIES UNDER REVIEW

The current section addresses each of the eight memory researchers targeted by the present review.

2.1 | Francis Galton

There is consensus that Galton is the founding father of the psychology of autobiographical memory (Robinson, 1986; Sotgiu, 2021). The reason for this lies in the frequently cited experiments the British scientist conducted on his own mental associations, the results of which were reported in two articles published in 1879, in *The Nineteenth Century* (Galton, 1879a) and *Brain* (Galton, 1879b).

The experimental material used by Galton included a set of 75 cue words (e.g., 'adoration', 'aborigines', 'absence') written on small sheets of paper. The experimental procedure was as follows. Galton read one word at a time, noting the first two associations, or ideas, arising in his mind. With the help of a chronograph, he measured the time he spent in forming the mental associations and wrote down the contents of these associations. Four trials were scheduled for each word, separated by an interval of 1 month. The experiment took place over a 3-month time period, including 300 trials (75 words × 4 trials).

Overall, Galton was able to record 505 ideas. He found that the formation process of these ideas required 660 s, an average of 1.31 s per idea. Galton noted that a significant part of his mental associations—although not the majority—took the form of personal recollections (e.g., the shiver of a remembered cold, the scent of some particular locality; see Galton, 1879b, p. 159), most of them dating back to Galton's young adult life and childhood. Furthermore, Galton also found that about half of his personal recollections arose two or more times over the course of the experimental trials. Based on this, Galton argued that repeatedly accessing to one's past causes significant autobiographical memory alterations:

We recollect the memories of incidents, or the memories of those memories, rather than the incidents themselves; and the original impression, like the original anecdote in the well-known game of "Russian scandal", receives

successive modifications at each step until it is strangely condensed and transformed. (Galton, 1879a, p. 429)

This statement about the reconstructive nature of autobiographical memory is one legacy of Galton's experiment on his own mental associations. His cue word technique is now routinely employed as a research technique in autobiographical memory.

2.2 | Madorah Smith

The American psychologist Smith investigated her own autobiographical memory by using personal diary records kept by her and of her by her mother (Smith, 1952). Smith conducted her self-study 6 years after retiring from the University of Hawaii, when she was 63 years old. She investigated her ability to remember 14 distinct periods of her life varying in length and spanning early childhood through to adulthood.³ The specific recall task was the following: Smith attempted to recall as many events as possible at each period investigated and then wrote down cue words for each memory. Several months later, she returned to this task as before, and finally checked the accuracy of her recollections with the help of her diaries.

Overall, Smith was able to recall 6263 events: 1958 up to age 20 and 4305 from subsequent years. Since this material was too vast, Smith focused her autobiographical memory assessments on the 10 events most clearly recalled at each life period. Subjective ratings for these events included clarity, novelty, memory for houses and persons, and emotional intensity. Smith calculated the average number of memories per month across the 14 life periods under investigation. This value rose rapidly until the age 13 (periods 1–3), remained substantially stable over the subsequent 27 years (periods 4–10), and then rose again in the last period. Thus, there was not a bump of memories relating to Smith's young adult life, as one might expect on the basis of contemporary studies on the distribution of memories across the life span (cf. Sotgiu, 2021). As concerns rates of forgetting, Smith noted that her curve resembled 'usual' curves: 'for the period 15 months previous, 80 per cent was recalled; for that six years previous, 66 per cent; eight-and-a-half years before, 62 per cent; ten-and-a-half years, 60 per cent; 22 years, 59 per cent; and 46 years before, 53 per cent' (Smith, 1952, pp. 163–164). The check of personal diaries kept by her and her mother also revealed that errors in memory dates were frequent.

The other analyses reported in Smith's article directly targeted the factors associated with her memory performance. Retention time negatively correlated with both number and clarity of memories: the lower the retention time, the higher the number and clarity of memories. Smith also reported that strong emotional experiences (either pleasant or unpleasant) were more likely to be remembered than neutrally toned ones, emotional intensity significantly affecting her memory performance.

2.3 | Marigold Linton

The Native American psychologist Linton used a diary method to investigate her personal memories associated with a specific period of

her adult life. Her main self-study took place at various phases distributed over 6 years (Linton, 1975, 1978, 1982). Between 1972 and 1978, Linton daily recorded at least two personal events which naturally occurred in her everyday life. For each recorded event, Linton wrote down a short description (not exceeding three 62-character lines; see Linton, 1978, p. 70), reported its date and time of occurrence, and provided a set of ratings on a number of event dimensions (e.g., importance, emotionality, probability of rehearsal, distinguishability). The memory tests took place on the first day of each month. As a first 'warm up' task, Linton freely recalled all the events she could from the preceding year.⁴ This task lasted approximately 30 min. Then, Linton read a pair of randomly paired event descriptions (they could refer to the previous months and years) and tested her ability to determine their chronological order and date of occurrence. Finally, Linton coded the memory-search strategy she employed to date her recollections and reassessed each item on the scales originally used at the recording stage.

Overall, Linton was able to record a total of 5500 personal events. Importantly, memory for the latter could be tested more than one time, resulting in 11,000 tests distributed over the course of 6 years (Linton, 1978, 1982). Unfortunately, Linton did not systematically analyse and present the whole body of her data,⁵ but I will attempt to set out her main findings.

The first report of Linton's study was published as a book chapter just 3 years after her investigation began (Linton, 1975). In this paper, Linton analysed the errors she made in estimating the dates of occurrence of the personal events she recorded during the first 20 months of the study. It emerged that Linton's estimates were very accurate for events less than 16 days ago (the average error was less than 1 day) and her most inaccurate estimates arose from events between 4 and 8 months old (an average error of about 12 days).

Of particular interest in Linton's analysis is the availability of her memories over the whole duration of the investigation (see Linton, 1978). Overall, it was found that only 32% of the recorded items were forgotten at the end of the investigation. A possible interpretation of this result points to the nature of the memory assessment procedure she employed. As I have already noted, memory for the same personal event could be repeatedly tested throughout the course of the study. Linton found that test rehearsals were negatively associated with forgetting: the larger the number of test rehearsals for a specific item, the lower the probability of forgetting it. Linton also found that her forgetting occurred quite slowly. This result contradicts the well-known Ebbinghaus' view of forgetting, formulated through his self-experiments on memory of nonsense syllables (Ebbinghaus, 1885/1913). According to Linton (1978, p. 72), discrepant findings between Ebbinghaus's experiment and her own study can be interpreted in methodological terms: while Ebbinghaus employed a free recall task, Linton's recall procedure was cued, the latter resulting in better memory performances.

In the last report of her self-study, Linton (1986) focused exclusively on free recall data. The latter were collected at three distinct phases: from 1972 to 1978 (as part of the warm-up task I have mentioned above), in 1978, and in 1983. As it has already been said,

between 1972 and 1978 Linton's task consisted in freely recalling her personal events from the *preceding* year. On the other hand, in 1978 she focused on the events that occurred during *randomly selected months* from 1972 to 1978 (i.e., the recall unit was 1 month). Finally, in 1983 Linton recalled events from *randomly selected years* from 1971 to 1982 (i.e., the recall unit was 1 year, as in the first phase of the study). Overall, results showed that memories of positive events significantly outnumbered those from negative events. Importantly, Linton carefully analysed the strategies she employed for searching her memories in the various study phases. It was found that the strategy used most frequently during the first phase consisted of listing the events in chronological order from the furthest ago to the most recent. On the other hand, a second strategy, albeit less frequent, involved selecting a particular life theme and searching for relevant personal experiences linked to it; Linton labelled this strategy *categorical summaries*. Other strategies were used much less frequently. Linton noted that her strategy preferences significantly changed when the memory searches targeted information more than 1 year old (as happened in the second and third phase of Linton's study). During the third phase of her study—in which the age of Linton's memories ranged from 1 to 12 years—it was found that, for time frames greater than 2.5 years, chronological searches were systematically replaced by categorical summaries. This result points to a clear relationship between retention time and the search strategies chosen to access the autobiographical past, a finding worthy of further systematic research.

2.4 | Willem Wagenaar

In order to investigate his own autobiographical memory, the Dutch psychologist Wagenaar (1986) designed and implemented an improved version of the research methodology employed by Linton (1975). His study was carried out between 1978 and 1984. During this period, Wagenaar recorded one or two significant personal events on a daily basis, collecting a total of 2402 items. In contrast to the recording procedure of Linton, Wagenaar described each event in terms of four specific details: *what* the event was, *who* was involved, and *when* and *where* the event occurred. Information about a critical detail of the event was also recorded using a question-answer format. All events were also rated on three dimensions: salience, emotional involvement and pleasantness. Importantly, all the event descriptions were transcribed into recall booklets by a colleague.⁶ Wagenaar's memory for these descriptions was tested by means of a cued recall task. When he read a cue—let us suppose *where* the event happened—he had to report the other three event details he originally recorded (i.e., *what*, *who*, *when*). When Wagenaar was given two cues (e.g., *what* and *who*), he had to report the two missing details (i.e., *where* and *when*). Memory tests of the same event description were conducted by using different orders and combinations of the four potential cues.

Wagenaar's article reports a wide range of statistical analyses of the data which were collected during the 6 years duration of his

study. The results concerning forgetting rates were similar to those obtained by Linton (1978). Not surprisingly, Wagenaar found that his recall accuracy significantly varied as a function of the number of retrieval cues, that is, the higher the number of cues, the higher the probability of providing a correct memory report. Interestingly, the effectiveness of single cues was not constant: the *what* cue was the most powerful and the *when* cue was the least effective. It was also found that specific cue combinations influenced the accuracy of recall.

Other interesting findings from Wagenaar's study concern a relationship between memory performance and the subjective ratings he assigned to personal events at the time they were recorded. Results showed that correct recall was positively related to salience, emotional involvement and pleasantness scores. Consistent with Linton's (1986) findings, pleasant events were better recalled than unpleasant events. In line with the *fading affect bias* (Walker et al., 1997, 2003), Wagenaar suggested that negative memories have a higher probability of being subject to suppression mechanisms; an interpretation with which Sigmund Freud would certainly agree.

2.5 | Steen Larsen

The Danish psychologist Larsen extended Wagenaar's study by investigating his memory for public news, as well as his recollections of personally experienced events (Larsen, 1992). This extension was motivated by Larsen's interest in the *flashbulb memory* phenomenon, namely people's tendency to develop vivid, detailed and long-lasting recollections of the personal circumstances in which they first heard about unexpected and traumatic events in the news (Luminet & Curci, 2018).

Larsen kept a diary in which one public news and one personal event were recorded every day over a 6-month period. Following Wagenaar, Larsen recorded four details for each recorded event (either public or personal): *what*, *who*, *when* and *where*. Information about a critical detail of the event was also recorded. Furthermore, each event was assessed on four dimensions: frequency of occurrence; duration of prior, related events; personal involvement; and pleasantness. Importantly, for public news events, additional information about the reception context was recorded; this included the type and number of sources from which Larsen heard the news, and a reception context detail he felt to be unique (e.g., time, location, persons present, ongoing activity, felt emotions). Memory tests took place on two different occasions: 5 weeks after the recording phase was completed and 4 months later. Thus, the retention intervals ranged from 1 to 11 months in this study. Similar to Wagenaar and Linton, Larsen chose to assess his autobiographical memory by means of a cued recall procedure. This was as follows: of the four recorded event details (*what*, *who*, *when*, *where*), three were given as cues and Larsen had to recall the fourth. Further measures of autobiographical memory encompassed ratings of confidence, recognition and rehearsal, and the cued recall of a critical event detail.

Results showed that Larsen judged public news events and personal events in very different ways: regardless of their type, public

events were rated to happen less frequently than personal events, but the latter were associated with higher levels of personal involvement and pleasantness. Memory performance for both types of event significantly declined over time, an unsurprising result, but Larsen observed that his forgetting rates were higher than those reported by Linton (1978) and Wagenaar (1986). Interestingly, Larsen's memories of his personal events were much more accurate than his recollections of public events. Larsen's ability to recall and recognise details related to the reception context of the news events was significantly lower than his memory for the news events themselves: 'flashbulb memories are indeed exceptional among memories of the circumstances of hearing the news' (Larsen, 1992, p. 58).

2.6 | Dorte Berntsen

The Danish psychologist Berntsen (1999, Study 1; see also Berntsen, 2009, pp. 58–65) conducted a self-study centred on the phenomenon of *involuntary autobiographical memories*, that is, recollections of personal experiences which come to mind without individuals making any retrieval effort.

Similar to Linton, Wagenaar and Larsen, Berntsen followed a diary-based approach, recording her involuntary memories on a daily basis over a period of 7 weeks. The specific experimental procedure she used was as follows. When an involuntary autobiographical memory cropped up in Berntsen's mind, she wrote down keyword phrases related to this memory in a small notebook. At a later time during the same day, she answered an extensive questionnaire about each recorded memory. This questionnaire allowed Berntsen to report a detailed description of each recorded memory, as well as what she was doing, thinking and feeling (both physically and emotionally) just before the memory cropped up in her mind. Within the same questionnaire, she provided subjective assessments for the following autobiographical memory properties: retention time, vividness, prior rehearsal, and commonalities between the retrieval context and the content of the memory.

Perhaps, the most important finding from Berntsen's study is that involuntary autobiographical memories are a frequently occurring phenomenon. On average, Berntsen recorded two involuntary memories each day, for a total of 100 records. However, she noted that 68% of the recorded memories were accompanied by additional involuntary autobiographical memories which were labelled as *successive memories*. Although successive memories were not the main focus of Berntsen's investigation, she was able to identify 169 recollections of this kind and noted that they generally shared one or more features with the target memory. Noteworthy, Berntsen also admitted that some days it was almost impossible for her to record all the memories that spontaneously came to her (Berntsen, 1999, p. 39).

As regard the content of her involuntary memories, Berntsen found that 86% of the 100 target memories and 90% of the 169 successive memories referred to *specific events* (i.e., events taking place only once in an individual's life, such as 'the first kiss') rather than to *summarised events* (i.e., events which may be repeated at regular

intervals, such as 'Sundays at the film club'; see Barsalou, 1988).⁷ Furthermore, the analysis of the phenomenological characteristics of target memories showed that the majority of them were rated as vivid and mildly emotionally intense. Berntsen's study examined the cues triggering her involuntary memories. For the majority of target memories (i.e., 88 out of 100), she found that there were relevant commonalities between the recalled event and the retrieval context. The most frequent memory cue categories were sensory experiences (mostly visual) and persons. As noted by Berntsen (1999, p. 40), the cues in terms of sensory experiences generally belonged to her external world; on the other hand, the cues in terms of persons were mental in nature.

2.7 | Alan Baddeley

The British psychologist Alan Baddeley is one of the most prominent scholars in the psychology of memory field. While his most influential studies and theories deal with the *working memory* construct (Baddeley, 1986), he has also researched autobiographical memory during his scientific career (Baddeley, 1988; Baddeley et al., 2009; Baddeley & Wilson, 1986) and, about a decade ago, published a study on his own autobiographical memory.

Findings from Baddeley's self-study are reported in a chapter entitled *Reflections on Autobiographical Memory* (Baddeley, 2012). Rather than recording personal events in a diary or using the cue word method to investigate his own memory, Baddeley analysed a sample of personal letters he had sent to his mother. All the letters used in this study were written around the year 1966. Baddeley noted that he unexpectedly discovered these letters when he was writing the essay where his self-study is currently described. This was also the time when he decided to test his memory for the content of his own letters, namely about 45 years after he wrote them.

Baddeley did not provide data on the exact number of letters he took into consideration for his study, but from table 5.1 of Baddeley's (2012, p. 83) chapter, we can infer that Baddeley's letters contained a total of 62 personal episodes. Baddeley categorised each episode as to whether he was able to remember it—also providing judgements on memory vividness—whether he had completely forgotten it, or whether he just knew it happened. Moreover, personal episodes were categorised as to whether they were trivial, specific (i.e., they occurred in a well-defined time and space context), and had been shared with other people. Baddeley reported that he was able to remember 37% of personal episodes under study; on the other hand, he had completely forgotten 42% of them, whereas the remaining 21% was associated with a feeling-of-knowing experience. Not unsurprisingly, Baddeley found that while clearly remembered episodes were typically nontrivial, most of forgotten episodes were trivial. As concerns personal memories that Baddeley just *knew* to be true, they tended to be less specific than both clear and forgotten memories. Finally, he also found that vivid memories were more likely to have been previously shared with other people.

As Baddeley (2012, p. 84) himself noted, his study was only preliminary in nature and his letters would need a closer and more

systematic scrutiny. As yet, Baddeley has published no further papers using this personal letter technique. Nevertheless, the British psychologist said that doing such preliminary study provided him with a new view of his autobiographical memory functioning. The following quotation from Baddeley's chapter crystallises this new view:

Reading my past letters has changed my view of my autobiographical memory from that of a slightly misty landscape to a construction based on a limited number of retold stories. Not peaks of memory jutting above a mist that can be penetrated with a little effort, but rather islands of recollection in a sea of forgetting. (p. 84)

2.8 | Richard White

Richard White is an Australian psychologist whose expertise pertains to both applied cognitive psychology and educational sciences. He started to investigate his own autobiographical memory in the late 1970s, some years after Linton began her self-study. However, unlike Linton and the other memory researchers, White continued to assess his personal recollections over the subsequent decades up to the present day (White, 1982, 1989, 2002, 2020).

The experimental procedure employed by White is very similar to Linton (1975). For a year, from January 1979, White recorded one event each day, wrote a short description of it (usually between 20 and 50 words), and rated the recorded event on a number of dimensions (i.e., rarity, participation, vividness, importance to self, association with knowledge, intensity of physical sensation, intensity of emotional sensation). White's ability to recall the events was assessed on five different occasions: after 1 and 2 years (White, 1982), 6 years (White, 1989), 20 years (White, 2002) and 40 years (White, 2020). Importantly, for all of these tests, White used a cued recall task: he first read each event description; then, estimated both the quality of its recall (using a 5-point scale) and the date and time of day of the event occurrence. White forgot to record his personal events on just 11 days, giving a total number of events subjected to the recall tests of 354.

Predictably, the results showed that quality of recall significantly declined over time (see White, 2020); 1 year after the recording period, 90 events were given the highest rating of recall quality, but 40 years later only 2 events obtained the same rating. Moreover, while in 1980 White reported having forgotten 141 events, this number more than doubled four decades later. In contrast to Linton (1978), White (2020, p. 778) judged his forgetting rates as consistent with the Ebbinghaus' (1885/1913) classical law of forgetting.

Interestingly, White's memory performances depended on how he originally rated his personal experiences on four event dimensions: rarity, vividness, intensity of emotional sensation and importance to self, all showed a positive association between the ratings given and the quality of recall. This held true across all the five stages of the investigation (White, 2020). White also examined his ability to recall both the dates and times of these episodes. The accuracy of the estimates strongly declined over the various recall tests; this finding

contrasts the widespread assumption that 'time is integral to the idea of memory' (p. 780).

The cued recall task described above was not the only procedure that White used in order to assess his own autobiographical memory. He also conducted a supplementary self-study in which an uncued recall task was employed (White, 2020). This study was carried out in 2019. White's task was to recall all the events he could remember for the years 1978–1980, that is occurring approximately 40 years before the time of the investigation. The task chosen for this study targeted two classes of autobiographical events: *extended events* (i.e., events lasting from hours to months and in which individual episodes were embedded) and *specific episodes* (i.e., events with a precise space–time context which usually came to mind as visual images). Results showed that White remembered quite accurately 15 extended events, the large majority of them regarding his travels abroad. The Australian psychologist made some mistakes in precisely dating these events, but estimates were approximately correct. White was also able to recall 174 specific episodes from 1978 to 1980; of these, 164 (94.2%) were embedded in one of the recalled extended events. As a consequence, specific episodes that occurred outside extended events were much less likely to be recalled. White interpreted this finding as consistent with the contemporary theories of the structure of autobiographical memory (cf. Barsalou, 1988; Conway & Pleydell-Pearce, 2000).

3 | THE OVERALL PICTURE

3.1 | Methodological issues

Altogether, the studies addressed by the present work show that memory researchers have adopted a range of experimental tasks and procedures to investigate their own autobiographical memory. Smith, Linton, Wagenaar, Larsen and White all followed a substantially similar methodological approach involving keeping a diary of their personal events and assessing their memory for these events at a later period. With the exception of Smith, most researchers set out to keep such diaries with research in mind. At the same time, the studies conducted by these researchers varied in a number of aspects: retention time, total number of recorded events, criteria adopted to define and select their personal events, the operationalisation of some memory variables, and the statistical procedures of data analysis.

The remaining three researchers targeted by the present work followed a very different path. Galton recorded the mnemonic details incorporated into his mental associations and analysed their contents. Berntsen kept a daily diary of her involuntary memories, providing multiple assessments of their characteristics and of their retrieval context. Finally, Baddeley examined his ability to recall the autobiographical contents of a sample of letters he sent to his mother many years previously.

There appears to be a connection between memory researchers' interests, the theoretical context in which they performed their studies, and the procedures they used. Linton, Wagenaar, Larsen,

Berntsen, Baddeley and White share an ecological approach to memory. On the other hand, Galton's study was purely experimental in nature, while Smith's contribution was strongly influenced by her background in developmental psychology.

It is also arguable that the specific methodological approaches used in the various studies allowed memory researchers to investigate distinct theoretical and empirical issues. Smith, Linton, Wagenaar, Larsen, Baddeley and White obtained relevant findings on the issues of forgetting, memory accuracy and memory content. Both Galton and Berntsen focused on the phenomenological properties of autobiographical memories. The study of Larsen provided some indirect evidence and insights into the flashbulb memory phenomenon. Finally, both Linton (1986) and White's (2020) investigations cast light on the processes of autobiographical memory organisation. Noteworthy, all these issues occupy a central place in the contemporary psychology of autobiographical memory (Berntsen & Rubin, 2012).

3.2 | What do the studies tell us about autobiographical memory functioning?

All the memory researchers tried to identify which factors had an effect on their memory performances. A wide range of potential determinants of autobiographical remembering were identified, including: retention time, event salience, event triviality, event specificity, frequency of event occurrence, participation, pleasantness, emotional intensity,⁸ physical arousal, importance to self, association with knowledge, vividness, and prior rehearsal. Unfortunately, each memory researcher was able to examine the influence of only a limited set of factors. That said, a number agree in showing that retention time (Larsen, 1992; Linton, 1978; Smith, 1952; Wagenaar, 1986; White, 2020) and emotional intensity (Berntsen, 1999; Smith, 1952; Wagenaar, 1986; White, 2020) exert a significant effect on various autobiographical memory measures. These findings are also consistent with the results of conventional investigations using groups of participants rather than individual observation (e.g., Talarico et al., 2004; Wang, 2009; see also the review by Rimé, 2004). Both Linton (1986) and Wagenaar (1986) found that pleasant events were better recalled than unpleasant ones, but Smith (1952, p. 170) and White (2020, p. 779) did not, mirroring the heated debate on this issue in the conventional memory literature (see Baumeister et al., 2001; Walker et al., 2003).

As regards rates of long-term forgetting, this issue was addressed by Smith, Linton, Wagenaar, Larsen and White, but it is difficult to draw definite conclusions on this subject as forgetting rates varied across studies. White (2020) maintained that his data could be appropriately represented by the Ebbinghaus' forgetting curve, but both Linton (1978) and Wagenaar (1986) argued that their forgetting rates were much flatter. Smith (1952) noted a broad resemblance between the 'usual' forgetting curves and her own. A tentative explanation for these discrepant findings may lie in the specific experimental designs and procedures adopted by different authors. Linton and Wagenaar recorded 5500 and 2402 personal events, respectively, and each

conducted more than 11,000 memory assessments. In contrast, the total number of personal events recorded by White was lower than 400 (see Table 1). Finally, Smith made memory ratings for just 140 events (i.e., those most clearly recalled). It is arguable that the researcher's level of involvement in their own study—in terms of time and repetition—might affect overall memory performance, an issue which warrants further attention from memory researchers.

4 | AN ASSESSMENT OF THE CURRENT STATE OF ART

4.1 | Strengths

On the whole, the studies reviewed in the current article have four major strengths. First, they allowed their respective authors to collect data on a wide range of naturally occurring events. Linton recorded personal episodes covering family, work, social relationships, leisure; Wagenaar, Larsen and White covered a similar range.

The experimental procedures employed by the various researchers encouraged them to report very personal recollections. With the exception of Wagenaar, researchers were able to do this as nobody else had access to their records other than themselves, a significant advantage over conventional memory studies. Moreover, it can be assumed that memory researchers taking part in self-studies might be less likely to be influenced by social desirability biases (see also Paulhus & Vazire, 2007).

A third relevant strength of the self-studies is the capacity of their methods to stimulate new research themes in autobiographical memory, which have subsequently been explored through conventional experiments. Examples include Galton's cue word technique (Crovitz & Quina-Holland, 1976; Crovitz & Schiffman, 1974; Robinson, 1976; Rubin et al., 1986; Schlagman et al., 2009), the approach to involuntary memories developed by Berntsen (Berntsen, 2001, Study 2 and 4; Berntsen & Hall, 2004, Study 1; Berntsen & Jacobsen, 2008; Finnbogadóttir & Berntsen, 2011; Schlagman et al., 2009) and the various memory assessment procedures employed by Linton, Wagenaar, Larsen and White (Thompson et al., 1996; Walker et al., 1997).

Finally, individual studies offer a near-unique opportunity to investigate very long-term autobiographical memory. Smith, Baddeley and White assessed their personal episodes dating back over 40 years.

4.2 | Weaknesses

However, the studies discussed in the current review suffer from some major limitations. They only provide information on the autobiographical memory functioning of the persons who took part in them. As happens in every single-subject study, it is difficult to draw conclusions which can be generalised to other individuals, groups or populations.

Inevitably, the studies reviewed also suffer from some methodological shortcomings. For instance, virtually all memory researchers who assessed the quality of their recollections and the characteristics of their personal events only used subjective measures. Wagenaar (1986, p. 228) noted that the cue word technique employed by Galton is flawed as it may prompt autobiographical memories whose age and accuracy cannot be verified. In a similar vein, there is no way to check whether Berntsen's involuntary reminiscences related to real or merely imagined events. White (1989) acknowledged that doing repeated memory tests on the same personal events—as he did in his self-study—could lead to misleading conclusions about an individual's memory performance: 'recall is a compound not only of the initial event but also of the experience of reading a description of it at the earlier pass through the records' (p. 129). Unfortunately, the same problem also applies both to Galton's and Linton's self-studies.

5 | CONCLUSIONS

All the memory researchers targeted by the current review invested a huge amount of time and energy in examining the mental representations of their personal past. On the whole, their studies provide a significant contribution to the development of the autobiographical memory literature. However, their number is incredibly low. Thinking back to his experiment, Galton (1879b) stated: 'It was a most repugnant and laborious work, and it was only by strong self-control that I went through my schedule according to programme' (p. 153). Similar concerns were also expressed by Smith (1952, p. 182), Linton (1975, p. 402) and Berntsen (1999, p. 37). Future memory researchers should seriously take self-admissions of this kind into account. One fruitful way to encourage the participation of memory researchers in self-studies of autobiographical memory might be to persuade them to adopt spontaneously generated records of their personal events, such as those that were only rarely used in previous studies (i.e., letters and personal diaries) or that were not used at all so far (i.e., videos and photos; but see Davies, 2016). Hopefully, these methodological improvements will increase the number of memory researchers willing to venture into exploring their own autobiographical memories. Arguably, the strengths of this approach more than compensate for its weaknesses.

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CONFLICT OF INTEREST

The author does not have conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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ENDNOTES

- ¹ Noteworthy, these words were untrue as it is now well recognised that the 38-year-old man mentioned in the quotation was Freud (for more in-depth considerations, see Sotgiu, 2021, pp. 38–40).
- ² Specifically, the following sets of query terms were adopted: (i) 'autobiographical memory' AND 'personal events' AND 'personal episodes'; (ii) 'autobiographical memory' AND 'personal past' AND 'personal events' or 'personal episodes'; (iii) 'autobiographical memory' AND 'self-study' AND 'personal events' or 'personal episodes'; (iv) 'autobiographical memory' AND 'personal past' AND 'self-study'.
- ³ As reported by Smith (1952, pp. 151–152), her life was characterised by great mobility: she lived in 58 different residences in 31 different towns for periods lasting from 1 month to 9 years. Noteworthy, the 14 life periods examined in her study varied in length because a number of them were identified on the basis of the amount of time Smith spent in specific locations. It is also important to note that these periods comprehensively covered 'only' 49 years of Smith's life; in fact, she did not consider one period of her life of almost 10 years.
- ⁴ This task strongly resembles the autobiographical recall procedure that Smith (1952) employed as her standard memory task.
- ⁵ For example, Linton did not provide full analyses of the relationship between event ratings and recall. In fact, only qualitative descriptions of these results are available (see Linton, 1982, pp. 87–90).
- ⁶ Wagenaar (1986, p. 231) noted that he opted for this solution as the quality of paper, lettering or ink could have betrayed the age of recording. At the same time, he admitted that this solution introduced some biases in the recording procedure as he avoided reporting events he deemed too personal to be shared with his colleague.
- ⁷ Similarly, Linton (1975, p. 396) noted that most of her forgotten events were repetitive in nature.
- ⁸ The term *emotional intensity* was employed by both Berntsen (1999) and White (2020). On the other hand, Wagenaar (1986) used the term *emotion involvement* to refer to the same factor.

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